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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,743	02/22/2006	Hartmut E. A. Bruschke	BPD-100US	3457
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RATNERPRESTIA			EXAMINER	
P O BOX 980			AFTERGUT, JEFF H	
VALLEY FORGE, PA 19482-0980				
			ART UNIT	PAPER NUMBER
			1791	
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			09/12/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/531,743

**Applicant(s)**

BRUSCHKE ET AL.

**Examiner**

Jeff H. Aftergut

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)  
Paper No(s)/Mail Date 8-2-05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-8, 10-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banfield in view of Gartaganis et al and any one of Japanese Patent 62-129108, Japanese Patent 57-154447, or Katraro et al.

Banfield suggested that it was known at the time the invention was made to form a membrane tube by applying a membrane sheet onto a mandrel (on the inner surface of the wound assembly) in overlapping relationship along with one or more porous fibrous tapes about the exterior of the membrane sheet on a mandrel (see column 2, lines 55-58). The reference suggested that a suitable adhesive was applied to join the layers together. The reference additionally suggested that in the manufacture of the winding of the tape or tapes of the fibrous material one skilled in the art would have wound the same "with adhesive on the appropriate sides by means of a flexible belt on a mandrel of a conventional winding machine", see column 2, lines 1-5. The reference was silent as to the exact nature of the winding operation with the adhesive material and the belt; however the reference to Gartaganis suggested a conventional arrangement of a winding machine including a flexible belt on the mandrel which applied an adhesive material to the windings (tapes) as they were being wound.

More specifically, Gartaganis et al suggested that those versed in the art would have applied an adhesive material from an extruder 40 through a pipe 42 (nozzle) onto the upper surface of the belt 20 where the adhesive employed is a setttable hot melt adhesive material. The reference taught that one skilled in the art would have wound the belt 20 upon the mandrel 10 in the groove 24 of the mandrel and that the adhesive was transferred and applied to the seam where the two edges of the tape wound upon the mandrel are overlapped and/or abutted. The adhesive is then set to secure the edges of the web 1 to seal the joint. Clearly, Gartaganis et al suggested that those skilled in the art would have applied an adhesive material onto a belt in a conventional winding operation such as that referred to by Banfield and applied the adhesive bead (sealant) to the inner joint at either the abutting layers wound or the overlapped regions of the wound layers when making the membrane assembly of Banfield. The combination failed to teach that one skilled in the art would have provided a seal about the overlap or butted edges of the wound material on the exterior of the tubular assembly.

Any one of Japanese Patent '108, '447 or Katraro et al suggested that those skilled in the art making a tubular membrane assembly would have exposed the same to heat and pressure about the exterior of the assembly in order to join the overlapping or abutting exterior ply of wound material and render the finished assembly smooth about the exterior. Applicant is more specifically referred to Japanese Patent '108 passed the wound tube through a heater 18 whereby the butt portions of the wound tape are fused together in the production of a permeable membrane. Japanese Patent

'447 suggested that a fabric tube for a membrane separation apparatus would have been wound from a sheet material and the overlapped edges of the same about the exterior would have been heat fused the overlapped portions of the wound sheet material in order to provide a smooth exterior surface therein. The reference to Katraro et al suggested that those skilled in the art would have employed an ultrasonic horn 12 to seal the overlapped portions of the winding about the exterior where the overlap was in order to form a self supporting tubular assembly for a membrane assembly. In each of these references, the exterior of the wound assembly at the overlap or butt was heat fused in order to form a tubular assembly having the desired properties. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the techniques of any one of Japanese Patent 62-129108, Japanese Patent 57-154447, or Katraro et al to secure the exterior overlap or abutting layers of the wound assembly to provide the same with a smooth exterior finished surface in the process of winding a membrane assembly in accordance with Banfield wherein the interior windings were sealed with an adhesive using a conventional belt application in a winding operation (as suggested by Banfield) as taught by Gartaganis et al.

With respect to claim 2, note that Banfield suggested the use of multiple layers for the winding of the tube exterior wherein multiple sheets would have been wound in accordance with the teachings therein. regarding claim 3, note that the prior art as expressed above suggested that the membrane as well as the supporting tube would have been wound upon a mandrel in a helical fashion as claimed. Regarding claim 5, note that Gartaganis et al suggested that one skilled in the art would have applied a

sealing means from a nozzle from within the component. with respect to claim 6, note that the reference to Gartaganis et al suggested that the sealing means was located on the mandrel and that the processing for making the tube would have been a continuous operation. One viewing the same in light of the winding teachings of Banfield would have understood that the sealing as well as the bonding to the overlapped portions on the exterior of the tube would have been performed in a single line of processing. Regarding claim 7, note that Banfield suggested multiple layers for the tube and such would clearly have included a "drainage layer". Regarding claim 8, note that the reference suggested that one skilled in the art would have applied the material onto the mandrel in sheet form which was helically (spirally) wound. Regarding claim 10, as discussed above, the reference to Gartaganis et al suggested the same. Regarding claim 11, see the discussion above regarding claim 6. regarding claims 12-14, note that Banfield suggested the use of multiple layers of material be employed in the manufacture of the membrane tubular assembly and such clearly would have included a "drainage" layer (such layers are taken as conventional in membrane assemblies).

3. Claims 4 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as set forth above in paragraph 2 further in view of Havens and Hamer.

The references as set forth above in paragraph 2 suggested that the membrane layer would have been formed from cellulose acetate, see Banfield for example. The references did not express that other materials would have been useful for the membrane materials nor did they suggest that the adhesive or sealant used to join the layers would have been formed from the same material that the membrane was made

of. However, as an initial matter, it was notoriously well known that the membrane materials need not be solely limited to cellulose acetate materials and that polyvinyl alcohol materials would have been an art recognized equivalent material for the membrane materials used in the form of a web for the filtration device as taught by Havens, see column 4, lines 9-20. While this does not teach the use of the same adhesive material, those skilled in the art would have understood that suitable adhesive material for securing an edge of a helically wound membrane material included the use of polyvinyl alcohol (when the membrane material was cellulose acetate, noting that polyvinyl alcohol was a known alternative to cellulose acetate for the membrane material as suggested by Havens) as taught by Hamer, see column 4, lines 70-column 5, line 2. Note that Hamer suggested that the membrane material was helically wound and the overlapped portions sealed with the polyvinyl alcohol sealing material. Clearly, as polyvinyl alcohol membrane material was an art recognized alternative to a cellulose acetate membrane material, it would have been obvious to those skilled in the art at the time the invention was made to utilize a polyvinyl alcohol membrane for the membrane material as suggested by Havens wherein the adhesive used to join the edges of the membrane was a polyvinyl alcohol adhesive sealant as suggested by Hamer in the process of making a helically wound membrane component as taught above in paragraph 2.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff H. Aftergut whose telephone number is 571-272-1212. The examiner can normally be reached on Monday-Friday 7:30-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff H. Aftergut/  
Primary Examiner  
Art Unit 1791

JHA  
September 8, 2008